

Protecting America's Competitive Edge Acts

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Section-by-Section Summary of Legislative Provisions as Introduced

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Protecting America's Competitive Edge through Energy (PACE-Energy)

Section 2. Mathematics, Science and Engineering Education at the Department of Energy

Amends the Department of Energy Science Education Enhancement Act to appoint a "Director of Mathematics, Science and Engineering Education Programs" to coordinate all Mathematics, Science, and Engineering Education Department-wide. This Director reports to the Undersecretary of Science. Establishes the following programs to be administered by the Director:

Sec. 3171. Specialty Schools for Math and Science – Authorizes the Secretary to provide financial assistance in teaching activities at public, statewide math and science specialty high schools.

Sec. 3175. Experiential-Based Learning Opportunities – Authorizes the Secretary to establish summer internships, including internships at the National Laboratories, for middle and high school students to promote experiential, hands-on learning in math and science.

Sec. 3181. National Laboratories Centers of Excellence in Mathematics and Science Education – Authorizes the Secretary to establish a program at each of the National Laboratories to support a Center of Excellence in Mathematics and Science at one public secondary school located in the region of the national laboratory.

Sec. 3185. Summer Institutes – Authorizes the Secretary to establish a program of summer institutes at each of the National Laboratories to strengthen the math and science teaching skills of K-12 teachers, with a particular focus on K-8 teachers.

Section 3191. Distinguished Scientists – Authorizes the Secretary to establish a program at national laboratories for 100 distinguished scientists who will hold appointments to promote academic and scientific excellence.

Section 3. Department of Energy Early Career Research Grants – Authorizes through fiscal year 2011 an independent research program for scientists and engineers who have completed their professional degrees within 10 years of the date of enactment of the Act.

Section 4. Advanced Research Projects Authority – Energy – Establishes the Advanced Research Projects Authority – Energy as a new office within DOE that will report to the Undersecretary for Science. The Authority is modeled on the Defense Advanced Research Projects Authority (DARPA) and will support ground-breaking energy research.

Section 5. Authorization of Appropriations for the Department of Energy Office of Science. Doubles authorized funding levels for basic research in the physical sciences.. The authorization levels for the Office of Science follow the National Academy recommendation of 10 percent annual growth from the current 2006 baseline budget through 2013.

Protecting America's Competitive Edge through Education and Research (PACE-Education)

Sec. 121. Baccalaureate Degrees in Mathematics and Science with Teacher Certification – Authorizes the Secretary of Education to award grants to departments of mathematics, science, or engineering at institutions of higher education that partner with teacher preparation programs to provide integrated courses of study that lead to a baccalaureate degree in math, science, or engineering with concurrent teacher certification.

Sec. 122. Master's Degree in Mathematics and Science Education for Teachers – Authorizes the Secretary to award grants to departments of mathematics, science, or engineering at institutions of higher education that partner with teacher preparation programs to develop and provide part-time, 3-year master's degree programs in math and science education for current teachers.

Sec. 132. National Science Foundation (NSF) Scholarships for Mathematics and Science Teachers – Authorizes the Director of the NSF to award merit-based scholarships up to \$20,000 per year for up to four years to students majoring in mathematics, science, or engineering who pursue concurrent teacher certification to assist the students in paying their college education expenses. Such expenses shall include tuition, fees, books, supplies, and equipment required for courses of instruction.

Sec. 141. NSF Fellowships for Mathematics and Science Teachers – Authorizes the Director of the NSF to award 2 types of fellowships to math and science teachers: 1) The Director shall award \$10,000 annually for four years to individuals who complete a baccalaureate degree in science, engineering, or mathematics, with concurrent teacher certification, and teach as a full-time mathematics, science or elementary school teacher in a high-need public elementary or secondary school; 2) The Director shall award \$10,000 annually for five years to teachers who have successfully completed a master's degree in science or mathematics education and who undertake increased responsibilities, such as teacher mentoring and other leadership activities.

Sec. 151. Advanced Placement and International Baccalaureate Programs – Authorizes the Secretary of Education to award grants to nonprofit entities to work with local school districts to:

1. provide training to teachers to teach Advanced Placement or International Baccalaureate (AP-IB) programs in mathematics and science, and pre-AP-IB programs in mathematics and science, and
2. increase the number of students who take pre-AP-IB and AP-IB courses in mathematics and science, and take and pass the AP-IB exams in mathematics and science.

Sec. 161. National Clearinghouse on Mathematics and Science Teaching Materials – Authorizes the Secretary of Education to convene a national panel to collect proven effective K-

12 mathematics and science teaching materials, and create a clearinghouse of such materials for dissemination to states and school districts.

Sec. 171. Future American-Scientist Scholarships – Authorizes the Secretary of Energy to award merit-based scholarships up to \$20,000 per year for up to four years to assist students in paying their college expenses. Such expenses shall include tuition, books, fees, supplies, and required equipment for courses of instruction leading to a baccalaureate degree in mathematics, science, or engineering at a 4-year institution of higher education.

Sec. 181. Graduate Research Fellowships – Authorizes the Secretary of Energy to establish a fellowship program to provide tuition and financial support for students enrolled in Master's and Doctoral degree programs in mathematics, science, engineering, or other areas of national need at institutions of higher education.

Section 191. NSF Early Career Research Grants – Authorizes through fiscal year 2011 an independent research program for scientists and engineers who have completed their professional degrees within 10 years of the date of enactment of the Act

Section 211. Coordination of Science, Mathematics and Engineering Education Programs. – Creates a standing subcommittee in the President's Committee of Advisors on Science and Technology to develop national goals for education in mathematics, science, and engineering across the various federal agencies that conduct such programs. Creates a Deputy Assistant Director for Science, Mathematics and Engineering in the Office of Science and Technology Policy to coordinate the federal budgets for education programs in science, mathematics and engineering as part of the annual budget submission of the President to Congress.

Section 212, National Coordination Office for Advanced Research Instrumentation and Facilities. –Directs the Office of Science and Technology Policy to coordinate the federal budget for research instrumentation at the Departments of Defense, Energy, NASA and the National Science Foundation with a supplemental authorization of appropriations for the named agencies for additional equipment grants.

Section 213. High-Risk, High-Payoff Research. – Directs the Office of Science and Technology Policy in consultation with the Office of Management and Budget to develop guidelines for federal research agencies to allow eight percent of R&D budgets to be devoted to high-risk, high payoff research which falls outside the peer review and budget allocation processes.

Section 214. President's Innovation Award. –Authorizes an Innovation Award to be delivered by the President for innovation amongst the interagency R&D priorities determined each year by the Directors of the Office of Science and Technology Policy and Office of Management and Budget. The award consists of a significant cash prize, a medal and a certificate.

Section 221. National Aeronautics and Space Administration Early Career Research Grants - Authorizes through fiscal year 2011 an independent research program for scientists and

engineers who have completed their professional degrees within 10 years of the date of enactment of the Act.

Section 222. Authorization of Appropriations of the National Astronautics and Aerospace Administration. –Increases the NASA basic research budget 10 percent annually through 2013.

Section 231. Sense of the Senate on Policies to Accelerate Deployment of Access to Broadband Internet. Provides that it is the Sense of the Senate that Congress and the FCC should work together to ensure the implementation of regulatory polices that facilitate and accelerate access to broadband internet.

Section 241. Development of Science Parks. – Supports the development of science parks through infrastructure planning grants and loan guarantees so that U.S. science parks are competitive with those throughout Asia.

Section 251. Authorization of Appropriations for the National Science Foundation. – Increases the NSF Research and Related Activities budget 10 percent annually through 2013.

Section 312. Sense of the Senate on Improving Visa Processing for Students and Researchers. Provides that it is the Sense of the Senate that the Department of State and the Department of Homeland Security review of the application of the Technology Alert List and work to better facilitate travel related to scientific conferences. The bill also recognizes recent improvements that have been made with respect to the Visas Mantis clearance process.

Section 313. Visas for Doctorate Students in Mathematics, Engineering, Technology, or the Physical Sciences. Creates a new “F-4” student visa for doctoral candidates studying in the fields of math, engineering, technology, or the physical sciences. After completing their doctoral program, eligible students could either return to their country of origin or remain within the United States for up to 1 year to seek employment in their relevant field of study. Upon gaining employment, the individual would also be permitted to adjust his or her status to that of a legal permanent resident after paying a \$1,000 fee and passing relevant security checks. Of the required fee, 80 percent would be deposited in a fund designated for job training and scholarships for American workers and 20 percent in a fraud prevention account.

Section 314. Aliens Not Subject to Numerical Limitations on Employment-Based Immigrants. Exempts the following categories of people from the numerical limitations on employment-based immigrants:

- (1) aliens who have earned an advanced degree in science, technology, engineering, or math and have been working in a related field in the United States under a temporary visa during the 3-year period preceding their application for an immigrant visa;
- (2) certain aliens who have shown “extraordinary” abilities in their line of work or who have received a “national interest waiver”; and
- (3) the immediate relatives of aliens who are admitted as employment-based immigrants.

Section 321 – Sense of the Senate on Patent Reform. – Provides that it is the Sense of the Senate that funding for the US Patent and Trademark Office should receive a 20% increase in

funding and that Congress should implement comprehensive patent reform per recommendations from the National Academies.

Section 401. Sense of the Senate on Deemed Export Controls. – Support the National Academy recommendation to reform proposals to the deemed export controls at universities by ensuring basic R&D is exempt.

Section 501. Department of Defense Early Career Research Grants - authorizes through fiscal year 2011 an independent research program for scientists and engineers who have completed their professional degrees within 10 years of the date of enactment of the Act.

Section 502. Authorization of Appropriations for Basic Research at the Department of Defense. - Supports the National Academy recommendation by increasing the DOD 6.1 basic research budget 10 percent annually through 2013.

Protecting America's Competitive Edge through Tax Incentives (PACE-Tax)

Section 1. Expansion of Credit for Research and Development – Doubles the current R&D tax credit (20% to 40%) and expands the credit to allow 100% of the cost of all research conducted by consortium, small businesses, federal laboratories and universities (current law limits the 100% cost inclusion to energy research). The entire R&D tax credit would also be made permanent. Finally, the provision requires the Treasury Department to report back to the President and Congress on moving the incremental approach to determining the credit for companies with significant and consistent research and development expenses. The Treasury will also include an analysis of expanding the credit to include employee benefit costs, 100% of contract costs, Section 174 expenses and any other costs determined appropriate by the Treasury. Finally, the Treasury will report back on the reduction or elimination of the limitation of the credit under Section 280C(c).

Section 2. United States-Based Innovation Incentives Study – Requires the Treasury Department, in consultation with OMB, to analyze of the U.S. tax system and its effect on the U.S. being the site selected by private entities for innovation investment and related activities. This analysis will include looking at the treatment of capital gains, corporate rates and incentives for high-tech manufacturing and research equipment. Treasury must complete this analysis and report to the President and Congress within 180 days of enactment.

Section 3. Employee Continuing Education Credit – Provides for a tax credit of up to \$500,000 annually to employers who provide qualified education to maintain or improve employees' knowledge in science or engineering.